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Engineer Research and Development Center

Coastal Field Data Collection Program
Surge Wave Island Modeling Studies (SWIMS)

Problem

Island coasts and populations are extremely vulnerable to tropical storms, but existing methodologies for analyzing hurricane/typhoon waves were developed for mainland coasts. Islands have special concerns such as adjacent deep water, very large incident storm waves, and fringing coral reefs. Coastal inundation calculation methodologies for island coasts have not received attention commensurate with the importance and complexity of the processes.

Research Approach

Develop, improve, and validate the next generation models to realistically represent island wave and inundation processes. Perform physical model studies on wave transformation and runup on steep bathymetry and fringing reefs to improve understanding of the processes and provide validation data sets to be used in conjunction with field measurements collected through PILOT. Package models for practical application by Districts and local entities.

Labs/others involved

Pacific Ocean Division, Honolulu District, Jacksonville District, University of Hawaii, University of Michigan.

Final Products

The final products will include: a modeling package for hurricane/typhoon wave and inundation modeling, documented data sets, user's guides, and research reports and papers.

Point of Contact

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